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Relevance scale ☐ ☐ ☐ ☐ ☐**1 Business-to-business interactions: issues and enabling technologies**

B. Medjahed, B. Benatallah, A. Bouguettaya, A. H. H. Ngu, A. K. Elmagarmid

May 2003 **The VLDB Journal — The International Journal on Very Large Data Bases,**

Volume 12 Issue 1

Full text available: pdf(558.34 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Business-to-Business (B2B) technologies pre-date the Web. They have existed for at least as long as the Internet. B2B applications were among the first to take advantage of advances in computer networking. The Electronic Data Interchange (EDI) business standard is an illustration of such an early adoption of the advances in computer networking. The ubiquity and the affordability of the Web has made it possible for the masses of businesses to automate their B2B interactions. However, several issues ...

**Keywords:** B2B Interactions, Components, E-commerce, EDI, Web services, Workflows, XML

**2 Session 14: middleware support for multimedia: A pluggable service-to-service communication mechanism for home multimedia networks**

Jin Nakazawa, Hideyuki Tokuda

December 2002 **Proceedings of the tenth ACM international conference on Multimedia**Full text available: pdf(436.61 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

This paper proposes a pluggable service-to-service (S2S) communication mechanism in a middleware for home networks, called Virtual Networked Appliance (VNA) architecture. In the architecture, service description method and the plug-gable S2S communication mechanism are separated in an orthogonal way. Through the separation, VNA architecture solved problems of home networks on which users have to operate multiple heterogeneous middleware technologies simultaneously: middleware fragmentation problem ...

**3 Developing and integrating enterprise components and services: Web services: beyond component-based computing**

Michael Stal

October 2002 **Communications of the ACM**, Volume 45 Issue 10

Full text available: pdf(138.33 KB)

html(41.29 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Seeking a better solution to the application integration problem.

4 Article abstracts with full text online: Towards software architecture at runtime

Gang Huang, Hong Mei, Qian-xiang Wang

March 2003 **ACM SIGSOFT Software Engineering Notes**, Volume 28 Issue 2

Full text available:  [pdf\(316.01 KB\)](#) Additional Information: [full citation](#), [abstract](#)

As Internet and wireless network make the runtime environment much more dynamic and open, software becomes more and more complex and difficult to maintain. Software architecture at run-time (RSA) can help maintainers understand and reason the run-time system. Moreover, RSA helps to keep SA consistent in the whole software lifecycle. This paper presents an approach to three fundamental issues of RSA, including making RSA the first-class entity at runtime, maintaining the causal-connection between ...

**Keywords:** reflection, runtime software architecture, software architecture, software maintenance

5 Invited workshop on middleware interoperability of enterprise applications: An open system architecture for operation support system at telecommunications service providers

Cledson Akio Sakurai, Moacyr Martucci Junior

September 2003 **Proceedings of the 1st international symposium on Information and communication technologies**

Full text available:  [pdf\(142.00 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)


To adapt at the new market, telecommunications service providers (carriers) need to supply a larger variety of low cost and high availability services, as well as speed in the development and delivery new value added services and control. Therefore, carriers need to implement Operation Support Systems (OSS) able to attend the customer's new needs and market opportunities quickly, but preserving the existing infrastructure of network elements and management systems. Thus, the market requires a sy ...

**Keywords:** OSS, distributed Architecture, middleware, plug and play, telecommunication

6 The Proteus multiprotocol message library

Kenneth Chiu, Madhusudhan Govindaraju, Dennis Gannon

November 2002 **Proceedings of the 2002 ACM/IEEE conference on Supercomputing**

Full text available:  [pdf\(128.51 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)



Grid systems span manifold organizations and application domains. Because this diverse environment inevitably engenders multiple protocols, interoperability mechanisms are crucial to seamless, pervasive access. This paper presents the design, rationale, and implementation of the Proteus multiprotocol library for integrating multiple message protocols, such as SOAP and JMS, within one system. Proteus decouples application code from protocol code at run-time, allowing clients to incorporate separa ...

**Keywords:** SOAP, component, grid, middleware, multiprotocol

7 Technical papers: component technologies: The Vienna Component Framework enabling composition across component models

Johann Oberleitner, Thomas Gschwind, Mehdi Jazayeri

May 2003 **Proceedings of the 25th international conference on Software engineering**

Full text available:  pdf(1.14 MB)  Additional Information: [full citation](#), [abstract](#), [references](#)  
[Publisher Site](#)

The Vienna Component Framework (VCF) supports the interoperability and composability of components across different component models, a facility that is lacking in existing component models. The VCF presents a unified component model---implemented by a façade component---to the application programmer. The programmer may write new components by composing components from different component models, accessed through the VCF. The model supports common component features, namely, methods, prop ...

## 8 Component-based software engineering: On the role of middleware in architecture-based software development

Nenad Medvidovic

July 2002 **Proceedings of the 14th international conference on Software engineering and knowledge engineering**

Full text available:  pdf(340.40 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

Software architectures promote development focused on modular functional building blocks (components), their interconnections (configurations), and their interactions (connectors). Since architecture-level components often contain complex functionality, it is reasonable to expect that their interactions will be complex as well. Middleware technologies such as CORBA, COM, and RMI, provide a set of predefined services for enabling component composition and interaction. However, the potential role ...

## 9 The making of Orbix and the iPortal suite

Sean Baker

June 2000 **Proceedings of the 22nd international conference on Software engineering**

Full text available:  pdf(220.83 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

IONA released the first full implementation of the CORBA standard in August 1992, and our first product, Orbix, has become the most successful object request broker, capturing almost 70-percent of this market. It has spawned many follow-on products from IONA and from partner companies. This development followed nearly ten years of research in the area of distributed object systems within Trinity College Dublin, centered on language support for developers of distributed systems. Th ...

**Keywords:** CORBA, EJB, Internet, J2EE, components, iterative development, team work

## 10 Flexible consistency checking

Christian Nentwich, Wolfgang Emmerich, Anthony Finkelstein, Ernst Ellmer

January 2003 **ACM Transactions on Software Engineering and Methodology (TOSEM)**, Volume 12 Issue 1

Full text available:  pdf(1.94 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The problem of managing the consistency of heterogeneous, distributed software engineering documents is central to the development of large and complex systems. We show how this problem can be addressed using xlinkit, a lightweight framework for consistency checking that leverages standard Internet technologies. xlinkit provides flexibility, strong diagnostics, and support for distribution and document heterogeneity. We use xlinkit in a comprehensive case study that demonstrates how design, impl ...

**Keywords:** CASE tools, consistency management, constraint checking, multiple perspectives

## 11 The design and performance of a pluggable protocols framework for real-time

### distributed object computing middleware

Carlos O'Ryan, Fred Kuhns, Douglas C. Schmidt, Ossama Othman, Jeff Parsons

April 2000 **IFIP/ACM International Conference on Distributed systems platforms**

Full text available:  [pdf\(231.64 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#)

*To be an effective platform for performance-sensitive real-time and embedded applications, off-the-shelf CORBA middleware must preserve the communication-layer quality of service (QoS) properties of applications end-to-end. However, the standard CORBA GIOP/HOP interoperability protocols are not well suited for applications that cannot tolerate the message footprint size, latency, and jitter associated with general-purpose messaging and transport protocols. It is essential, therefore, to de ...*

### 12 Interoperable Web services for computational portals

Marlon Pierce, Geoffrey Fox, Choonhan Youn, Steve Mock, Kurt Mueller, Ozgur Balsoy

November 2002 **Proceedings of the 2002 ACM/IEEE conference on Supercomputing**

Full text available:  [pdf\(278.00 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Computational web portals are designed to simplify access to diverse sets of high performance computing resources, typically through an interface to computational Grid tools. An important shortcoming of these portals is their lack of interoperable and reusable services. This paper presents an overview of research efforts undertaken by our group to build interoperating portal services around a Web Services model. We present a comprehensive view of an interoperable portal architecture, beginning w ...

### 13 At the forge: Entity beans

Reuven M. Lerner

January 2002 **Linux Journal**, Volume 2002 Issue 93

Full text available:  [html\(19.93 KB\)](#) Additional Information: [full citation](#), [index terms](#)

### 14 PIROL: a case study for multidimensional separation of concerns in software engineering environments

Stephan Herrmann, Mira Mezini

October 2000 **ACM SIGPLAN Notices , Proceedings of the 15th ACM SIGPLAN conference on Object-oriented programming, systems, languages, and applications**, Volume 35 Issue 10

Full text available:  [pdf\(441.79 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


In this paper, we present our experience with applying multidimensional separation of concerns to a software engineering environment. By comparing two different designs of our system, we show the importance of separating integration issues from the implementation of the individual concerns. We present a model in which integration issues are encapsulated into rst-class connector objects and indicate how this facilitates the understandability, maintenance and evolution of the system. We identify ...

**Keywords:** component integration, domain-specific language, separation of concerns, software engineering environment

### 15 A service-oriented monitoring registry

Bahman Kalali, Paulo Alencar, Don Cowan

October 2003 **Proceedings of the 2003 conference of the Centre for Advanced Studies conference on Collaborative research**

Full text available:  [pdf\(217.87 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Web services are software modules that expose their functionality over the Internet via well-defined interfaces. Although Web services are promising technologies in that they facilitate application-to-application communication over the Internet, they still rely on traditional distributed computing communication models such as the remote procedure call, in which a Web service requestor needs to have complete knowledge of a Web service provider interface. If a Web service requestor did not use the ...

#### 16 One and two-day tutorials: Quality of service engineering with UML, .NET, and CORBA

Torben Weis, Andreas Ulbrich, Kurt Geihs

May 2003 **Proceedings of the 25th international conference on Software engineering**

Full text available:  [pdf\(194.75 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#)

 [Publisher Site](#)

The concern for non-functional properties of software components and distributed applications has increased significantly in recent years. Non-functional properties are often subsumed under the term Quality of Service (QoS). It refers to quality aspects of a software component or service such as real-time response guarantees, availability, and fault-tolerance, the degree of data consistency, the precision of some computation, or the level of security. Consequently, the specification and implemen ...


#### 17 Articles: The Deliberate Revolution

Mike Burner

March 2003 **Queue**, Volume 1 Issue 1

Full text available:  [pdf\(326.81 KB\)](#)

Additional Information: [full citation](#), [index terms](#)

 [html\(64.11 KB\)](#)


#### 18 Developing and integrating enterprise components and services: Enterprise services

Paul Fremantle, Sanjiva Weerawarana, Rania Khalaf

October 2002 **Communications of the ACM**, Volume 45 Issue 10

Full text available:  [pdf\(157.90 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [index terms](#)

 [html\(45.90 KB\)](#)

Examining the emerging field of Web Services and how it is integrated into existing enterprise infrastructures.

#### 19 Technical correspondence: Analysis of object interaction during the enterprise javabeans lifecycle using formal specification technique

Ji-Hyun Lee, Cheol-Jung Yoo, Ok-Bae Chang

June 2002 **ACM SIGPLAN Notices**, Volume 37 Issue 6

Full text available:  [pdf\(749.96 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#)

Today's many software projects are based on integration of independently designed software components that are acquired on the market, rather than developed within the projects as a whole. Such a component-based development is an architectural design that permits flexible composition of components into applications. EJB is a good example of these components architecture. Sometimes we misunderstand how EJB operates precisely, because EJB specification is documented in informal language. This page ...

#### 20 Data dissemination and pervasive computing: Semantically driven service interoperability for pervasive computing

Declan O'Sullivan, David Lewis

September 2003 **Proceedings of the 3rd ACM international workshop on Data engineering for wireless and mobile access**

Full text available:  pdf(179.45 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The common vision of pervasive computing environments requires a very large range of devices and software components to interoperate seamlessly. From the assumption that these devices and associated software permeate the fabric of everyday life, a massive increase looms in the number of software developers deploying functionality into pervasive computing environments. This poses a very large interoperability problem for which solutions reliant solely on interoperability standards will not scale. ...

**Keywords:** DAML-S, pervasive computing, semantic interoperability, service composition, topic maps

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